ULX-D Digital Wireless Microphone System
1. READ these instructions.
2. KEEP these instructions.
3. HEED all warnings.
4. FOLLOW all instructions.
5. DO NOT use this apparatus near water.
6. CLEAN ONLY with dry cloth.
7. DO NOT block any ventilation openings. Allow sufficient distances for adequate ventilation and install in accordance with the manufacturer’s instructions.
8. DO NOT install near any heat sources such as open flames, radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat. Do not place any open flame sources on the product.
9. DO NOT defeat the safety purpose of the polarized or grounding type plug. A polarized plug has two blades with one wider than the other. A grounding type plug has two blades and a third grounding prong. The wider blade or the third prong are provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.
10. PROTECT the power cord from being walked on or pinched, particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.
11. ONLY USE attachments/accessories specified by the manufacturer.
12. USE only with a cart, stand, tripod, bracket, or table specified by the manufacturer, or sold with the apparatus. When a cart is used, use caution when moving the cart/apparatus combination to avoid injury from tip-over.
13. UNPLUG this apparatus during lightning storms or when unused for long periods of time.
14. REFER all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as power supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.
15. DO NOT expose the apparatus to dripping and splashing. DO NOT put objects filled with liquids, such as vases, on the apparatus.
16. The MAINS plug or an appliance coupler shall remain readily operable.
17. The airborne noise of the Apparatus does not exceed 70dB (A).
18. Apparatus with CLASS I construction shall be connected to a MAINS socket outlet with a protective earthing connection.
19. To reduce the risk of fire or electric shock, do not expose this apparatus to rain or moisture.
20. Do not attempt to modify this product. Doing so could result in personal injury and/or product failure.
21. Operate this product within its specified operating temperature range.

This symbol indicates that dangerous voltage constituting a risk of electric shock is present within this unit.

This symbol indicates that there are important operating and maintenance instructions in the literature accompanying this unit.

WARNING: This product contains a chemical known to the State of California to cause cancer and birth defects or other reproductive harm.
Shure ULX-D Digital Wireless offers uncompromising audio quality and RF performance, with intelligent, encryption-enabled hardware and advanced rechargeability options for professional sound reinforcement.

A breakthrough in wireless audio quality, Shure digital processing enables ULX-D to deliver the purest reproduction of source material ever available in a wireless system. Extended 20 Hz – 20 KHz frequency range and totally flat response captures every detail with clarity, presence, and incredibly accurate low-end and transient response. At greater than 120 dB, ULX-D delivers wide dynamic range for excellent signal-to-noise performance. For added convenience, proprietary Shure Gain Ranging optimizes the system’s dynamic range for any input source, eliminating the need for transmitter gain adjustments.

In RF performance, ULX-D sets the bar for wireless channel efficiency and signal stability. Minimized intermodulation allows more transmitters to operate simultaneously over one TV channel than any other system. Rock-solid RF signal with no audio artifacts extends over the entire 100 meter line-of-sight range, even using standard dipole antennas. For applications where secure transmission is required, ULX-D offers Advanced Encryption Standard (AES) 256-bit encrypted signal for unbreakable privacy.

Advanced Lithium-ion rechargeability provides extended transmitter battery life over alkaline batteries, battery life metering in hours and minutes accurate to within 15 minutes, and detailed tracking of battery health status.

Generations ahead of any other available system in its class, ULX-D brings a new level of performance to professional sound reinforcement.

**Uncompromising Professional Digital Wireless**

- 24-bit/48 KHz digital audio that exceeds all other systems in accurate reproduction of the source material
- 20 Hz – 20 KHz frequency range with flat response
- Greater than 120 dB dynamic range for excellent signal-to-noise performance
- Advanced Encryption Standard (AES-256) for any application where secure transmission is needed:
  - AES algorithm used in Shure ULX-D™ Wireless has been validated (validation no: 2552) by the National Institute of Standards and Technology (NIST) as conforming to the Advanced Encryption Standard (AES) Algorithm, as specified in Federal Information Processing Standard (FIPS) Publication 197, Advanced Encryption Standard
  - Enabled via front panel menu and IR sync
  - Added benefit of eliminating stray RF interference by allowing only encrypted signal through to the receiver
  - Built-in limiter circuitry prevents digital audio clipping from excessive signal levels.
- 60 dB of adjustable system gain easily accessible from the receiver front panel
- No transmitter gain adjustments needed - optimized for any input source
- Wide selection of trusted Shure Microphones

**Extremely Efficient and Reliable RF Performance**

- Up to 64 MHz overall tuning range (region dependent)
- Minimized intermodulation distortion results in significantly more channels on air, setting the bar for wireless performance in crowded RF environments
- 17 active transmitters in one 6 MHz TV channel
- 22 active transmitters in one 8 MHz TV channel
- High Density mode enables up to 47 active transmitters in one 6 MHz TV channel (63 in one 8 MHz TV channel), with no audio quality degradation
- Over 60 compatible channels on one frequency band
- Rock-solid signal stability with no audio artifacts extends over the entire 100 meter line-of-sight range using standard supplied dipole antennas
- Selectable 1, 10, and 20 mW transmitter RF output power (region dependent)
- Optimized scanning automatically finds, prioritizes, and selects the cleanest frequencies available

**Rugged, Intelligent Hardware**

- Optimized scanning automatically finds and deploys the cleanest frequencies available
- Proprietary Shure Gain Ranging optimizes system dynamic range for any input source, eliminating the need for transmitter gain adjustments
- Up to 60 dB of adjustable system gain is easily accessible from the receiver front panel
- Networkable receiver simplifies setup across multiple channels
- Compatible with external controllers such as AMX and Creston. Cross-subnet control enabled for management between multiple facilities or venues.
- Rugged metal housing on both transmitters and receiver
- Interference detection and alerts provide instant confirmation when interference is present
- Upgraded LCD screens with adjustable contrast and brightness on both transmitters and receivers

**Advanced Rechargeability - SB900 Shure Rechargeable Battery**

- Lithium-Ion chemistry and intelligent Shure battery circuitry results in rechargeable batteries with no memory effect. The battery can be recharged at any time; a complete discharge is never necessary
- Adapted from industry-leading Axient® rechargeable technology
- Lithium-Ion chemistry and intelligent Shure battery circuitry results in rechargeable batteries with zero memory effect and precision metering
- Provides ULX-D™ transmitters with greater than 11 hours of continuous use
- Transmitters and receivers display remaining battery life in hours and minutes accurate to within 15 minutes
- The SBC200 Dual Docking Charger recharges batteries while in transmitters or out
- The SBC800 Eight-Bay Charger brings up to eight SB900 batteries to full charge within three hours and 50% charge in one hour, with charge status LEDs for each battery
- AA alkaline backwards compatibility
- Both chargers fit in a standard-size rack drawer for easy transport and storage
Quickstart Instructions

1. a
   - Connect the antenna at a 45° angle.

2. a
   - Power on the receiver.

   b
   - Scanning mode.

   c
   - Scan complete.

3. a
   - Insert batteries into the transmitter.

   b
   - Batteries status.

   c
   - Batteries replacement.

4. a
   - Perform the Sync process.

   b
   - Sync success.

ULXD4 Digital Wireless Receiver

ULXD2 Digital Wireless Receiver
Front Panel

1. **Sync Button**
   Press the sync button while the receiver and transmitter IR windows are aligned to transfer settings from the receiver to the transmitter.

2. **Infrared (IR) Sync Window**
   Sends IR signal to the transmitter for sync.

3. **Network Icon**
   Illuminates when the receiver is connected with other Shure devices on the network. IP Address must be valid to enable networked control.

4. **Encryption Icon**
   Illuminates when AES-256 encryption is activated: Utilities > Encryption.

5. **LCD Panel**
   Displays settings and parameters.

6. **Scan Button**
   Press to find the best channel or group.

7. **Menu Navigation Buttons**
   Use to select and navigate through parameter menus.

8. **Control Wheel**
   Push to select menu items for editing, turn to edit a parameter value.

9. **RF Diversity LEDs**
   Indicate antenna status:
   - Blue = normal RF signal between the receiver and transmitter
   - Red = interference detected
   - Off = No RF connection between the receiver and transmitter
   Note: the receiver will not output audio unless one blue LED is illuminated.

Back Panel

1. **RF Antenna Diversity Input Jack (2)**
   For antenna A and antenna B.

2. **Power Supply Jack**
   Connect the supplied 15 V DC external power supply.

3. **Network Speed LED (Amber)**
   - Off = 10 Mbps
   - On = 100 Mbps

4. **Ethernet Port**
   Connect to an Ethernet network to enable remote control and monitoring.

5. **Network Status LED (Green)**
   - Off = no network link
   - On = network link active
   - Flashing = network link active, flash rate corresponds to traffic volume.

6. **Mic/Line Switch**
   Applies a 30 dB pad in mic position (XLR output only).

7. **Balanced XLR Audio Output**
   Connect to a mic or line level input.

8. **Balanced 1/4" (6.35 mm) TRS Audio Output**
   Connect to a mic or line level input.

- **RF Signal Strength LEDs**
  Indicate the RF signal strength from the transmitter:
  - Amber = Normal (-90 to -70 dBm)
  - Red = Overload (greater than -25 dBm)

- **Audio LEDs**
  Indicate average and peak audio levels:

<table>
<thead>
<tr>
<th>LED</th>
<th>Audio Signal Level</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Red (6)</td>
<td>-0.1 dBFS</td>
<td>Overload/ limiter</td>
</tr>
<tr>
<td>Yellow (5)</td>
<td>-6 dBFS</td>
<td>Normal peaks</td>
</tr>
<tr>
<td>Yellow (4)</td>
<td>-12 dBFS</td>
<td></td>
</tr>
<tr>
<td>Green (3)</td>
<td>-20 dBFS</td>
<td>Signal Present</td>
</tr>
<tr>
<td>Green (2)</td>
<td>-30 dBFS</td>
<td></td>
</tr>
<tr>
<td>Green (1)</td>
<td>-40 dBFS</td>
<td></td>
</tr>
</tbody>
</table>

- **Gain Buttons**
  Adjust channel gain.

- **Power Switch**
  Powers the unit on or off.
Transmitters

① Power LED
- Green = unit is powered on
- Red = low battery or battery error (see Troubleshooting)
- Amber = power switch is disabled

② On/Off Switch
Powers the unit on or off.

③ SMA Connector
Connection point for RF antenna.

④ LCD Display:
View menu screens and settings. Press any control button to activate the backlight.

⑤ Infrared (IR) Port
Align with the receiver IR port during an IR Sync for automated transmitter programming.

⑥ Menu Navigation Buttons
Use to navigate through parameter menus and change values.

<table>
<thead>
<tr>
<th>exit</th>
<th>Acts as a ‘back’ button to return to previous menus or parameters without confirming a value change</th>
</tr>
</thead>
<tbody>
<tr>
<td>enter</td>
<td>Enters menu screens and confirms parameter changes</td>
</tr>
<tr>
<td>▼▲</td>
<td>Use to scroll through menu screens and to change parameter values</td>
</tr>
</tbody>
</table>

⑦ Battery Compartment
Requires Shure SB900 rechargeable battery or 2 AA batteries.

⑧ AA Battery Adapter
- Handheld: rotate and store in the battery compartment to use a Shure SB900 battery
- Bodypack: remove to accommodate a Shure SB900 battery

⑨ Bodypack Antenna
For RF signal transmission.

⑩ Integrated Antenna
For RF signal transmission.

⑪ Microphone Cartridge
See Optional Accessories for a list of compatible cartridges.

⑫ TA4M Input Jack
Connects to a 4-Pin Mini Connector (TA4F) microphone or instrument cable.

Advanced Transmitter Features

RF MUTE
Use this to turn on a transmitter without interfering with the RF spectrum. Press and hold the exit button during power-on until RF MUTED is displayed. To un-mute, restart the transmitter.

MIC.OFFSET
MIC.OFFSET compensates for signal level differences between transmitters that share the same receiver channel.
Set the offset gain on a low signal level transmitter to match a louder transmitter: UTILITY > MIC.OFFSET

Note: For normal gain adjustments, use the receiver gain buttons.

Transmitter Audio Mute Mode
Mute Mode reconfigures the transmitter power switch to act as a mute switch for the audio. Using the switch, the audio can be easily turned on or muted by presenters, sports referees, or anyone who periodically needs to speak. When the audio is muted, the transmitter RF signal remains on and ready at all times.

Note: Mute Mode can be selected as an IR PRESET option.
To set a transmitter to Mute Mode:
1. From the transmitter menu: UTILITY > MUTEMODE
2. Use the arrows to select ON or OFF.
3. Press enter to save.

Tip: The transmitter LED turns red when audio is muted and turns green when audio is enabled. The display of the transmitter will show AUDIO MUTE and the receiver display will show Tx Mute.

Note: Mute Mode must be set to OFF in order to use the power switch to turn off the transmitter.

Transmitter Input Clip
The following warning displays on the receiver LCD panel when the transmitter input is clipped:

To correct, set MIC.OFFSET to 0 dB and if necessary, attenuate the signal source.
If the source cannot be attenuated while using a bodypack transmitter, select INPUTPAD from the main menu to attenuate the input signal by 12 dB.
Home Screens

Receiver

1. Receiver Information
   Use UTILITIES > HOME INFO to change the home screen display.

2. Gain Setting
   -18 to +42 dB, or Mute.

3. Mic. Offset Indicator
   Indicates offset gain is added to the transmitter.

4. Transmitter Settings
   The following information cycles when a transmitter is tuned to the receiver's frequency:
   - Transmitter Type
   - Input Pad (Bodypack only)
   - RF Power Level
   - Transmitter Lock Status
   - Transmitter Mute Status

5. Battery Runtime Indicator
   - Shure SB900 battery: runtime is displayed in hours:minutes remaining
   - AA Batteries: runtime is displayed with a 5-bar indicator.

6. TV Channel
   Displays the TV channel that contains the tuned frequency.

7. High Density Mode Icon
   Displayed when High Density mode is enabled.

Transmitter Status

The following text or icons report transmitter status to the receiver screen:

<table>
<thead>
<tr>
<th>Display Icon</th>
<th>Transmitter Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>-</td>
<td>Bodypack input is attenuated 12 dB</td>
</tr>
<tr>
<td>*</td>
<td>Offset gain is added to the transmitter</td>
</tr>
<tr>
<td>Lo</td>
<td>1 mW RF power level</td>
</tr>
<tr>
<td>Nm</td>
<td>10 mW RF power level</td>
</tr>
<tr>
<td>Hi</td>
<td>20 mW RF power level</td>
</tr>
<tr>
<td>M</td>
<td>Menu is locked</td>
</tr>
<tr>
<td>P</td>
<td>Power is locked</td>
</tr>
<tr>
<td>TxMuted</td>
<td>Displayed when the transmitter audio is set to off using the MUTE MODE feature</td>
</tr>
<tr>
<td>-NoTx-</td>
<td>No RF connection between a receiver and transmitter or transmitter OFF</td>
</tr>
</tbody>
</table>

Adjusting Receiver Display Brightness and Contrast

Adjust BRIGHTNESS and CONTRAST settings to improve visibility in challenging lighting environments.

1. From the receiver menu: DEVICE UTILITIES > DISPLAY
2. Press the control wheel to select CONTRAST or BRIGHTNESS.
3. Turn the control to adjust the selected parameter.
4. Press ENTER to save changes.

Transmitter

1. Transmitter Information
   Scroll ▲▼ at the home screen to change the display.

2. Power Lock Indicator
   Indicates power switch is disabled.

3. Transmitter Audio Muted Indicator
   Displayed when the transmitter audio is set to off using the MUTE MODE feature.

4. Battery Runtime Indicator
   - Shure SB900 battery: runtime is displayed in hours:minutes remaining
   - AA Batteries: runtime is displayed with a 5-bar indicator.

5. Menu Lock Indicator
   Indicates menu navigation buttons are disabled.

6. Mic. Offset
   Displays microphone offset gain value.

7. RF Power
   Displays RF power setting.

8. Bodypack Input Pad
   The input signal is attenuated 12 dB.

9. Encryption Icon
   Indicates encryption is enabled on the receiver and has been transferred to the transmitter from a sync.

Home Screen Display Options

Receiver

The HOME INFO menu provides options to change the information shown on the receiver home screen:

DEVICE UTILITIES > HOME INFO

Use the control wheel to select one of the following screen displays:

- CHAN NAME 470.150Hz +12dB
- G:01 CH:01 470.150Hz +12dB

Transmitter

Home Screen: Press the ▲▼ arrows at the home menu to display one of the following screens:

- CHAN NAME 470.150Hz
- G:01 CH:01 470.150Hz
- 470.150Hz
The transmitter runs on two AA batteries or the Shure SB900 rechargeable battery. Use the included AA battery adapter when using batteries other than the Shure SB900.

**Alkaline**

<table>
<thead>
<tr>
<th>Battery Indicator</th>
<th>RF Power Setting</th>
<th>10 mW</th>
<th>20 mW</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>10 mW</td>
<td>&gt;11:00 to 9:35</td>
<td>5:45 to 5:15</td>
</tr>
<tr>
<td></td>
<td>20 mW</td>
<td>9:35 to 6:00</td>
<td>5:15 to 4:00</td>
</tr>
<tr>
<td></td>
<td>10 mW</td>
<td>6:00 to 2:30</td>
<td>4:00 to 2:00</td>
</tr>
<tr>
<td></td>
<td>20 mW</td>
<td>2:30 to 1:00</td>
<td>2:00 to 0:50</td>
</tr>
<tr>
<td></td>
<td>10 mW</td>
<td>1:00 to 0:20</td>
<td>0:50 to 0:10</td>
</tr>
<tr>
<td></td>
<td>20 mW</td>
<td>0:20 to 0:00</td>
<td>0:10 to 0:00</td>
</tr>
</tbody>
</table>

**NiMH**

<table>
<thead>
<tr>
<th>Battery Indicator</th>
<th>RF Power Setting</th>
<th>10 mW</th>
<th>20 mW</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>10 mW</td>
<td>&gt;13:00 to 11:10</td>
<td>9:00 to 7:40</td>
</tr>
<tr>
<td></td>
<td>20 mW</td>
<td>11:10 to 7:00</td>
<td>7:40 to 5:15</td>
</tr>
<tr>
<td></td>
<td>10 mW</td>
<td>7:00 to 2:50</td>
<td>5:15 to 2:05</td>
</tr>
<tr>
<td></td>
<td>20 mW</td>
<td>2:50 to 1:25</td>
<td>2:05 to 1:00</td>
</tr>
<tr>
<td></td>
<td>10 mW</td>
<td>1:25 to 0:20</td>
<td>1:00 to 0:15</td>
</tr>
<tr>
<td></td>
<td>20 mW</td>
<td>0:20 to 0:00</td>
<td>0:15 to 0:00</td>
</tr>
</tbody>
</table>

**Shure SB900 Rechargeable Battery**

When using an SB900 rechargeable battery, the receiver and transmitter home screens display the number of hours and minutes remaining.

Detailed information for the SB900 is displayed in the receiver BATTERYINFO menu and the transmitter menu: UTILITY > BATTERY > BATT. STATS

**Health**: Displays battery health as a percentage of the charge capacity of a new battery.

**Charge**: Percentage of a full charge

**Cycles**: Number of times the battery has been charged

**Temp**: Battery temperature in Celsius and Fahrenheit

**Note**: For additional rechargeable battery information, visit www.shure.com.

**Shure SB900 Runtime**

<table>
<thead>
<tr>
<th>1 mW</th>
<th>10 mW</th>
<th>20 mW</th>
</tr>
</thead>
<tbody>
<tr>
<td>&gt;11 hours</td>
<td>&gt;11 hours</td>
<td>&gt;7 hour</td>
</tr>
</tbody>
</table>

**Installing the Battery Contact Cover**

Install the included battery contact cover (65A15947) on the handheld transmitter to prevent light reflection in broadcast and performance situations.

1. Align the cover as shown.
2. Slide the cover over the battery contacts until it is flush with the transmitter body.

**Note**: Slide the cover off before inserting the transmitter in the battery charger.
Use this procedure to tune a receiver and transmitter to the best open channel.

**Important!** Before you begin:

- **Turn off** all transmitters for the systems you are setting up. (This prevents them from interfering with the frequency scan.)
- **Turn on** the following potential sources of interference so they are operating as they would be during the presentation or performance (the scan will detect and avoid any interference they generate):
  - Other wireless systems or devices
  - Computers
  - CD players
  - Large LED panels
  - Effects processors

1. Press the **SEL** button to select a receiver channel.
2. Perform a group scan on the receiver: **SCAN > GROUP SCAN**.
3. Press **SCAN** to start the scan. **SCANNING** appears on the LCD during the scan.
4. After the scan completes, the receiver displays the group with the most available frequencies. Press the flashing **ENTER** button to deploy frequencies to each receiver channel.
5. Power on the ULXD transmitter.
6. Press the **sync** button on the receiver.
7. Align the IR windows until the receiver IR port illuminates red.

When complete, **SYNC SUCCESS!** appears. The transmitter and receiver are now tuned to the same frequency.

### Manual Frequency Selection

To manually adjust group, channel or frequency:

1. Select **RADIO** from the receiver menu.
2. Use the control wheel to select and adjust the group, channel, or frequency.
3. Press **ENTER** to save.

### Multiple System Setup

A setup using networked receivers is the fastest and easiest way to distribute the best open channel to each system. See Networking ULX-D Receivers for networking details.

**Note:** Networked receivers must all be within the same frequency band.

### Networked Receivers

1. Turn on all receivers.
2. Conduct a group scan on the first receiver to find available frequencies in each group: **SCAN > GROUP SCAN**.
3. Press **ENTER** to accept the group number and automatically assign the next best channel to each receiver on the network. The receiver LEDs will flash when a frequency has been assigned.
4. Turn on a transmitter and sync to the receiver.

**Important!** Leave the transmitter on and repeat this step for each additional system.

### Non-networked Receivers

1. Turn on all receivers.
2. Conduct a group scan on the first receiver to find available frequencies in each group: **SCAN > GROUP SCAN > SCAN**.
3. When the scan is complete, use the control wheel to scroll through each group. Press **ENTER** to select a group that has enough available frequencies for all channels in the system.
4. Sync a transmitter to each receiver channel.

**Important!** Leave all transmitters on use the following steps to set up additional receiver channels:

1. Set each additional receiver channel to the same group as the first receiver: **RADIO > G:**
2. Conduct a channel scan to find available frequencies within the group: **SCAN > SCAN > CHANNEL SCAN > SCAN**
3. When the scan is complete, press **ENTER** to assign frequencies to each receiver channel.
4. Sync a transmitter to each receiver channel.
Setting Receiver Gain

The receiver gain control sets the audio signal level for the entire receiver and transmitter system. Changes to the gain settings occur in realtime allowing for adjustments during live performances. When adjusting the gain, monitor the audio meter levels to prevent signal overloads.

Receiver Gain Controls

The gain can be adjusted by using the gain ▲▼ buttons or by entering the AUDIO menu and using the control wheel.

Tip: To quickly adjust the gain, press and hold a gain button to enable accelerated scrolling.

Reading the Audio Meter

The audio meter displays yellow, green, and red LEDs to indicate the audio signal level. Audio peaks illuminate the LEDs for 2 seconds, while the RMS signal is displayed in realtime.

When setting up the receiver, adjust the gain so that the average signal LED levels are solid green and occasionally yellow, with only the highest peaks causing the red LED to illuminate.

Tip: If a vocalist is overloading a bodypack transmitter, try lowering the receiver gain. If additional attenuation is needed, use the transmitter menu to set the INPUT PAD to -12dB.

Note: Illumination of the red OL (overload) LED indicates the internal limiter is engaged to prevent digital clipping.

Muting a Receiver Channel Audio Output

The audio output of each receiver channel can be independently muted to prevent audio from passing. Mute status is indicated by Rx Muted message appearing on the receiver display in place of the gain value.

Note: Receiver gain is disabled for muted channels to prevent unexpected changes in audio levels.

To set a receiver channel output to mute:

1. AUDIO > MUTE
2. Use the control wheel to select ON or OFF.
3. Press ENTER to save.

To unmute the receiver output:

Simultaneously press the ▲▼ buttons or select OFF from the MUTE menu option.

Tip: Audio mute can be enabled remotely from Wireless Workbench or from an external controller.

Important! A power cycle will reset the receiver and unmute the audio output.

Editing Receiver Channel Name

To edit a receiver channel name, choose EDIT NAME from the menu.

• Turn the control wheel to edit a highlighted character
• Press the control wheel to advance to the next character
• Press ENTER to save changes

Note: The channel name is transferred to a transmitter during a sync.

Transmitter Input Clip

The following warning displays on the receiver LCD panel when the transmitter input is clipped:

To correct, attenuate the signal source. If the source cannot be attenuated while using a bodypack transmitter, select INPUT PAD from the main menu to attenuate the input signal 12 dB.

Receiver Output Level

The following table describes the typical total system gain from the audio input to the receiver outputs:

<table>
<thead>
<tr>
<th>Output Jack</th>
<th>System Gain (gain control = 0dB)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/4” TRS</td>
<td>+18 dB</td>
</tr>
<tr>
<td>XLR (line setting)</td>
<td>+24 dB</td>
</tr>
<tr>
<td>XLR (mic setting)</td>
<td>-6 dB*</td>
</tr>
</tbody>
</table>

*This setting matches a typical wired SM58 audio signal level.
Networking Receivers

The receiver uses an Ethernet connection to network with other components. For automatic network configuration, use a DHCP enabled Ethernet switch such as the Shure AXT620. Use multiple Ethernet switches to extend the network for larger installations.

Note: Note use only one DHCP server per network.

Automatic IP Addressing

1. If using a Shure AXT620 Ethernet switch, set the DHCP switch to ON.
2. Set the IP Mode to Automatic for all receivers: DEVICE UTILITIES > NETWORK > CTRL NETWORK

Manual IP Addressing

1. Connect the receivers to an Ethernet switch.
2. Set the IP Mode to Manual for all devices (DEVICE UTILITIES > NETWORK > CTRL NETWORK)
3. Set valid IP addresses for all devices.
4. Set the subnet mask to the same value for all devices.

Troubleshooting

• Use only one DHCP server per network
• All devices must share the same subnet mask
• All receivers must have the same level of firmware revision installed
• Look for the illuminated network icon on the front panel of each device: If the icon is not illuminated, check the cable connection and the LEDs on the network jack.
• If the LEDs are not on and the cable is plugged in, replace the cable and recheck the LEDs and network icon.

To check connectivity of WWB6 to the network:

1. Start WWB6 software and use Inventory view to see devices connected to the network.
2. If not, find the IP address from one of the devices on the network (such as an ULX-D receiver) and see if you can ping it from the computer running WWB6.
3. From a WINDOWS/MAC command prompt, type ‘ping IPADDRESS’ of the device (e.g. "ping 192.168.1.100").
4. If the ping returns success (no packet loss), then the computer can see the device on the network. If the ping returns failure (100% packet loss), then check the IP address of the computer to ensure it’s on the same subnet as the Axient device.
5. If the pings are successful and the devices still do not show up in the WWB6 inventory, check to ensure all firewalls are either disabled or allow the WWB network traffic to pass to the application. Check that firewall settings are not blocking network access.

Device ID

Set the receiver Device ID for easy identification within the network or in Wireless Workbench: DEVICE UTILITIES > NETWORK > SHURE CONTROL > DevID

Use the control wheel to edit the device ID.

Connecting to an External Control System

The ULX-D receiver is compatible with external control systems such as AMX or Crestron via the Ethernet, using the same cables used to carry Shure Control (WWB6). Use only one controller per system to avoid messaging conflicts.

• Connection: Ethernet (TCP/IP; ULX-D receiver is the client)
• Port: 2202

For a comprehensive list of ULX-D command strings, visit: http://shure.custhelp.com/app/answers/detail/a_id/4976

Setting the Gateway to Allow Cross Subnet Routing

ULX-D receivers include gateway addressing to support cross-subnet routing. The gateway setting allows a single controller to manage devices assigned to different subnets such as multiple rooms or multiple buildings.

Note: A gateway address is an advanced network setting. In most network configurations, the setting does not need to be changed.

To set the receiver gateway:

1. From the receiver menu: DEVICE UTILITIES > NETWORK > SHURE CONTROL > NETWORK
2. Press and turn the control wheel to set the Mode to Manual.
3. Press the control wheel to navigate to the first digit of the GW (gateway) setting.
4. Turn the control wheel to change a value, press the control wheel to advance to the next octet.
5. When finished, press ENTER to save.

Note: When setting the gateway address, the IP address and Subnet must be set to valid addresses.
High Density Mode

High Density mode creates additional bandwidth for more channels in crowded RF environments. Frequency efficiency is optimized by running at 1 mW RF transmit power and narrowing the modulation bandwidth, allowing for the channel spacing to be reduced from 350 kHz to 125 kHz. Transmitters can be positioned on adjacent channels with unsubstantial intermodulation distortion (IMD).

High Density mode is ideal for applications where many channels are needed in a confined area, transmission distances are short, and the number of available frequencies is limited. Up to 30 meters of range is available in High Density mode.

**Setting the Receiver to High Density Mode**

To set the receiver to High Density mode:

DEVICE UTILITIES > ADVANCED RF > HIGH DENSITY

Use the control wheel to set HIGH DENSITY to ON.

When prompted, sync the transmitter and receiver to enable HIGH DENSITY mode.

**Note:** When the receiver is in HIGH DENSITY mode, the following indicators are shown on the receiver display:

- The HD icon will appear on the receiver display
- The receiver band name will be shown with an "HD" added. (example: The G50 band will appear as G50HD)
- The transmitter group and channel are assigned letters instead of numbers (example: G:AA CH:AA)

**Best Practices for High Density Mode**

- When band planning, position ULX-D High Density channels in a range of frequencies separated from other devices.
- Use a separate RF zone for ULX-D High Density channels to prevent intermodulation distortion from other devices.
- During High Density channel scanning, turn on all other transmitters and move them to their intended position.
- Perform a walk test to verify transmitter range
- If using custom groups, the groups loaded into the receiver must be compatible with High Density mode
Locking Controls and Settings

Use the LOCK feature to prevent accidental or unauthorized changes to the hardware. Attempting to access a locked feature will display the following message:

Receiver

Menu path: UTILITIES > LOCK

- **MENU:** All menu paths are inaccessible. To unlock, press the EXIT button, turn the control wheel to select UNLOCKED and press ENTER to save.
- **GAIN:** Gain adjustment is locked
- **POWER:** Power switch is disabled
- **SCN/SYC:** Cannot perform a Scan and Sync

Transmitter

Menu path: UTILITY > LOCK

- **MENU:** All menu paths are inaccessible. To unlock, press the ENTER button four (4) times to pass through the following screens: UTILITY > LOCK > MENU > UNLOCK
- **POWER:** Power switch is disabled

Quick-Lock Option: To turn on the transmitter with its power and menu navigation buttons locked, press and hold the ▲ button during power-on until the locked message is displayed.

To unlock, turn the power switch to the off position, then press and hold the ▲ button while turning the power switch to the on position.

Transmitter IR Presets

Use the IR PRESETS receiver menu to quickly configure transmitter settings from the receiver screen. When a sync is performed between the receiver and transmitter, the IR PRESETS automatically configure the transmitter. Each parameter has the default value KEEP, which leaves that setting unaffected by a sync.

<table>
<thead>
<tr>
<th>Feature</th>
<th>Setting</th>
</tr>
</thead>
<tbody>
<tr>
<td>BPPAD</td>
<td>+0 dB, -12 dB</td>
</tr>
<tr>
<td>LOCK</td>
<td>Power, Menu, All, None</td>
</tr>
<tr>
<td>RFPOWER</td>
<td>10mW=Nm (normal), 1mW=Lo (low), 20mW=Hi (high)</td>
</tr>
<tr>
<td>BATT</td>
<td>Alkaline, NiMH, Lithium</td>
</tr>
<tr>
<td>BPOFFSET</td>
<td>0 dB to +21 dB (in 3 dB increments)</td>
</tr>
<tr>
<td>HHOFFSET</td>
<td>0 dB to +21 dB (in 3 dB increments)</td>
</tr>
<tr>
<td>MUTE MODE</td>
<td>OFF, ON</td>
</tr>
<tr>
<td>Cust. Group</td>
<td>OFF, ON</td>
</tr>
</tbody>
</table>

**Note:** When Cust. Groups is set to on, it may take up to 30 seconds to complete an IR sync.

System Reset

System Reset clears the current receiver settings and restores the factory default settings.

To restore factory default settings:
1. Go to DEVICE UTILITIES > SYSTEM RESET > RESTORE.
2. Scroll to the DEFAULT SETTINGS option and press ENTER.
3. Press the flashing ENTER button to return the receiver to the default settings.

Encryption

AES algorithm used in Shure ULX-D™ Wireless has been validated (validation no: 2552) by the National Institute of Standards and Technology (NIST) as conforming to the Advanced Encryption Standard (AES) Algorithm, as specified in Federal Information Processing Standard (FIPS) Publication 197, Advanced Encryption Standard.

1. Enable encryption on the receiver: DEVICE UTILITIES > ENCRYPTION. The encryption symbol illuminates green and the LCD displays SYNC NOW FOR ENCRYPTION.
2. Sync the transmitter to the receiver. The encryption symbol displays on the transmitter.

**Note:** Any change to the encryption status on the receiver such as enabling encryption or requesting a new encryption key, requires a sync to send the settings to the transmitter. The Encryption Mismatch warning will display on the receiver LCD panel if they are not on the same setting.
Managing the ULXD Receiver with Wireless Workbench 6

Adding a computer running Wireless Workbench® 6 to the network allows for remote control and monitoring of the receiver. Visit: www.shure.com/wwb to download Wireless Workbench 6 software.

Managing and Monitoring Receiver Settings
Manage and monitor receiver settings by opening the Monitor tab in Wireless Workbench. Click on the Settings button to show or hide the full Properties window.

1. Click on the Monitor tab to view the Device Chooser.
2. From the Device Chooser, click on a channel to select.
3. Click on Properties to open the Properties window.

- RF and Audio Meters
  - Displays: current levels, band, TV, and TX Overload
- Transmitter Settings
  - Displays: RF Power, Tx Type, Tx Offset, Tx Lock
- Frequency Settings
  - Use drop-down to edit value
- Encryption Icon
  - Illuminates when Encryption is enabled
- Receiver Output Mute
  - Click on the mute button to enable mute
- Receiver Gain Setting
  - Use drop-down to edit value
- Custom Groups
  - Click to enter custom group settings
- IR Presets
  - Click to configure transmitter IR presets
- Utilities Tab
  - Accesses Utility settings
- Network Tab
  - Set network mode, view: IP address, Subnet, MAC, Firmware version

Viewing the Receiver in WWB6 Inventory
Click on the Inventory tab to view the receiver channels. Double-click on parameters to enable editing.

Tip: Clicking on the receiver icon next to the Model flashes the front panel LEDs for remote identification.

Hardware Identify
Hardware Identify is a useful feature for remotely discovering and identifying networked components that appear in WWB6 inventory. For example, individual receivers located on a stage can be identified remotely in the WWB6 inventory window by pressing the control wheel on the receiver. When the control wheel is pressed, the corresponding receiver icon in WWB6 will flash to identify the location of the receiver.
Troubleshooting

<table>
<thead>
<tr>
<th>Issue</th>
<th>See Solution...</th>
</tr>
</thead>
<tbody>
<tr>
<td>No Sound</td>
<td>Power, Cables, or RF</td>
</tr>
<tr>
<td>Faint sound or distortion</td>
<td>Gain</td>
</tr>
<tr>
<td>Lack of range, unwanted noise bursts, or dropouts</td>
<td>RF</td>
</tr>
<tr>
<td>Cannot turn transmitter off or change frequency settings, or can't program receiver</td>
<td>Interface locks</td>
</tr>
<tr>
<td>Encryption error message</td>
<td>Encryption Mismatch</td>
</tr>
</tbody>
</table>

Power
Make sure that the receiver and transmitter are receiving sufficient voltage. Use the 15 V DC power supply furnished with the ULXD4 receiver. Check the battery indicators and replace the transmitter batteries if necessary.

Gain
Adjust the system gain on the front of the receiver. Ensure the output level (XLR output only) on the back of the receiver corresponds to the input of the mixing console, amplifier, or DSP.

Cables
Check that all cables and connectors are working correctly.

Interface Locks
The transmitter and the receiver can be locked to prevent accidental or unauthorized changes. A locked feature or button will produce the Locked screen on the LCD panel.

Encryption Mismatch
Re-sync the receiver and transmitter after enabling or disabling encryption.

Radio Frequency (RF)

RF LEDs
If neither blue RF Diversity LED is illuminated, then the receiver is not detecting the presence of a transmitter.

The amber RF Signal Strength LEDs indicate the amount of signal being received. This signal could be from the transmitter, or it could be from an interfering source, such as a television broadcast. If more than one or two of the amber RF LEDs are still illuminated while the transmitter is off, then that channel has too much interference, and you should try a different channel.

The red RF LED indicates RF overload. This will usually not cause a problem unless you are using more than one system at the same time, in which case, it can cause interference in the other system.

Compatibility
- Perform a Scan and Sync to ensure the transmitter and receiver are set to the same group and channel.
- Look at the label on the transmitter and receiver to make sure they are in the same band (G50, J50, L50, etc...).

Reducing Interference
- Perform a group or channel scan to find the best open frequency. Perform a sync to transfer the setting to the transmitter.
- For multiple systems, check that all systems are set to channels in the same group (systems in different bands do not need to be set to the same group).
- Maintain a line of sight between transmitter and receiver antennas.
- Move receiver antennas away from metal objects or other sources of RF interference (such as CD players, computers, digital effects, network switches, network cables and Personal Stereo Monitor (PSM) wireless systems).
- Eliminate RF overload (see below).

Increasing Range
If the transmitter is more than 6 to 60 m (20 to 200 ft) from the receiver antenna, you may be able to increase range by doing one of the following:
- Reduce interference (see above).
- Increase transmitter RF power level.
- Use an active directional antenna, antenna distribution system, or other antenna accessory to increase RF range.

Eliminating RF Overload
If you see the red RF LED on a receiver, try the following:
- Reduce the transmitter RF power level
- Move the transmitter further away from the receiver—at least 6 m (20 ft)
- If you are using active antennas, reduce antenna or amplifier gain.
- Use omnidirectional antennas
ULXD Specifications

**RF Carrier Frequency Range**
470–937.5 MHz, varies by region (See Frequency Range and Output Power table)

**Working Range**
100 m (330 ft)
Note: Actual range depends on RF signal absorption, reflection and interference.

**RF Tuning Step Size**
25 kHz, varies by region

**Image Rejection**
>70 dB, typical

**RF Sensitivity**
-98 dBm at 10\(^{-5}\) BER

**Latency**
<2.9 ms

**Audio Frequency Response**

<table>
<thead>
<tr>
<th>Model</th>
<th>Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>ULXD1</td>
<td>20 – 20 kHz (±1 dB)</td>
</tr>
<tr>
<td>ULXD2</td>
<td>Note: Dependent on microphone type</td>
</tr>
</tbody>
</table>

**Audio Dynamic Range**

<table>
<thead>
<tr>
<th></th>
<th>System Gain @ +10</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>&gt;120 dB, A-weighted, typical</td>
</tr>
</tbody>
</table>

**Total Harmonic Distortion**

<table>
<thead>
<tr>
<th></th>
<th>12 dBFS input, System Gain @ +10</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>&lt;0.1%</td>
</tr>
</tbody>
</table>

**System Audio Polarity**
Positive pressure on microphone diaphragm produces positive voltage on pin 2 (with respect to pin 3 of XLR output) and the tip of the 6.35 mm (1/4-inch) output.

**Operating Temperature Range**
-18°C (0°F) to 50°C (122°F)
Note: Battery characteristics may limit this range.

**Storage Temperature Range**
-29°C (-20°F) to 74°C (165°F)
Note: Battery characteristics may limit this range.

**Dimensions**
197 mm x 171 mm x 42 mm (7.75 in. x 6.75 in. x 1.65 in.), H x W x D

**Weight**
913 g (2.0 lbs), without antennas

**Housing**
steel

**Power Requirements**
15 V DC @ 0.6 A, supplied by external power supply (tip positive)

**Audio Output**

**Gain Adjustment Range**
-18 to +42 dB in 1 dB steps (plus Mute setting)

**Configuration**

<table>
<thead>
<tr>
<th>Connector Type</th>
<th>Impedance</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/4&quot; (6.35 mm)</td>
<td>Impedance balanced (Tip=audio, Ring=no audio, Sleeve=ground)</td>
</tr>
<tr>
<td>XLR</td>
<td>balanced (1=ground, 2=audio +, 3=audio −)</td>
</tr>
</tbody>
</table>

**Impedance**

<table>
<thead>
<tr>
<th>Connector Type</th>
<th>Impedance</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/4&quot; (6.35 mm)</td>
<td>100 Ω (50 Ω Unbalanced)</td>
</tr>
<tr>
<td>XLR</td>
<td>100 Ω</td>
</tr>
</tbody>
</table>

**Full Scale Output**

<table>
<thead>
<tr>
<th>Connector Type</th>
<th>Full Scale Output</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/4&quot; (6.35 mm)</td>
<td>+12 dBV</td>
</tr>
<tr>
<td>XLR</td>
<td>LINE setting= +18 dBV, MIC setting= -12 dBV</td>
</tr>
</tbody>
</table>

**Mic/Line Switch**
30 dB pad

**Phantom Power Protection**

<table>
<thead>
<tr>
<th>Connector Type</th>
<th>Phantom Power Protection</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/4&quot; (6.35 mm)</td>
<td>Yes</td>
</tr>
<tr>
<td>XLR</td>
<td>Yes</td>
</tr>
</tbody>
</table>

**Networking**

**Power Over Ethernet (PoE)**
No, protected

**Network Interface**
Single Port Ethernet 10/100 Mbps

**Network Addressing Capability**
DHCP or Manual IP address

**Maximum Cable Length**
100 m (328 ft)
ULXD1

Gain Offset Range
0 to 21 dB (in 3 dB steps)

Battery Type
Shure SB900 Rechargeable Li-Ion or LR6 AA batteries 1.5 V

Battery Runtime
@ 10 mW

<table>
<thead>
<tr>
<th>Battery Type</th>
<th>Runtime</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shure SB900</td>
<td>&gt;11 hours</td>
</tr>
<tr>
<td>alkaline</td>
<td>&gt;11 hours</td>
</tr>
</tbody>
</table>

Dimensions
86 mm x 66 mm x 23 mm (3.4 in. x 2.6 in. x 0.9 in.) H x W x D

Weight
142 g (5.0 oz.), without batteries

Housing
Cast aluminum

Audio Input

Connector
4-Pin male mini connector (TA4M), See drawing for details

Configuration
Unbalanced

Impedance
1 MΩ, See drawing for details

Maximum Input Level
1 kHz at 1% THD

<table>
<thead>
<tr>
<th>Pad Off</th>
<th>8.5  dBV (7.5 Vpp)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pad On</td>
<td>20.5  dBV (30 Vpp)</td>
</tr>
</tbody>
</table>

Preamplifier Equivalent Input Noise (EIN)
System Gain Setting ≥ +20
-120  dBV, A-weighted, typical

RF Output

Connector
SMA

Antenna Type
1/4 wave

Impedance
50 Ω

Occupied Bandwidth
<200 kHz

Modulation Type
Shure proprietary digital

Power
1 mW, 10 mW, 20 mW

See Frequency Range and Output Power table, varies by region

ULXD2

Gain Offset Range
0 to 21 dB (in 3 dB steps)

Battery Type
Shure SB900 Rechargeable Li-Ion or LR6 AA batteries 1.5 V

Battery Runtime
@ 10 mW

<table>
<thead>
<tr>
<th>Battery Type</th>
<th>Runtime</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shure SB900</td>
<td>&gt;11 hours</td>
</tr>
<tr>
<td>alkaline</td>
<td>&gt;11 hours</td>
</tr>
</tbody>
</table>

Dimensions
256 mm x 51 mm (10.1 in. x 2.0 in.) L x Dia.

Weight
340 g (12.0 oz.), without batteries

Housing
Machined aluminum

Audio Input

Configuration
Unbalanced

Maximum Input Level
1 kHz at 1% THD
145 dB SPL (SM58), typical

Note: Dependent on microphone type

RF Output

Antenna Type
Integrated Single Band Helical

Occupied Bandwidth
<200 kHz

Modulation Type
Shure proprietary digital

Power
1 mW, 10 mW, 20 mW

See Frequency Range and Output Power table, varies by region
### Battery Runtime

<table>
<thead>
<tr>
<th>Battery Type</th>
<th>10 mW</th>
<th>20 mW</th>
</tr>
</thead>
<tbody>
<tr>
<td>SB900</td>
<td>&gt;11 hours</td>
<td>&gt;7 hours</td>
</tr>
<tr>
<td>Alkaline</td>
<td>&gt;11 hours</td>
<td>&gt;5 hours</td>
</tr>
<tr>
<td>NiMH</td>
<td>&gt;13 hours</td>
<td>&gt;8 hours</td>
</tr>
<tr>
<td>Li-primary</td>
<td>12.5-18 hours</td>
<td>9.5-12 hours</td>
</tr>
</tbody>
</table>

The values in this table are typical of fresh, high quality batteries. Battery runtime varies depending on the manufacturer and age of the battery.

### Frequency Range and Transmitter Output Power

<table>
<thead>
<tr>
<th>Band</th>
<th>Frequency Range (MHz)</th>
<th>Power (mW)</th>
</tr>
</thead>
<tbody>
<tr>
<td>G50</td>
<td>470 to 534</td>
<td>1/10/20</td>
</tr>
<tr>
<td>G51</td>
<td>470 to 534</td>
<td>1/10/20</td>
</tr>
<tr>
<td>G52</td>
<td>479 to 534</td>
<td>1/10/20</td>
</tr>
<tr>
<td>H50</td>
<td>534 to 598</td>
<td>1/10/20</td>
</tr>
<tr>
<td>H51</td>
<td>534 to 598</td>
<td>1/10/20</td>
</tr>
<tr>
<td>H52</td>
<td>534 to 565</td>
<td>1/10/20</td>
</tr>
<tr>
<td>J50</td>
<td>572 to 636</td>
<td>1/10/20</td>
</tr>
<tr>
<td>K51</td>
<td>606 to 670</td>
<td>1/10/20</td>
</tr>
<tr>
<td>L50</td>
<td>632 to 696</td>
<td>1/10/20</td>
</tr>
<tr>
<td>L51</td>
<td>632 to 696</td>
<td>1/10/20</td>
</tr>
<tr>
<td>P51</td>
<td>710 to 782</td>
<td>1/10/20</td>
</tr>
<tr>
<td>R51</td>
<td>800 to 810</td>
<td>1/10/20</td>
</tr>
<tr>
<td>JB (Tx only)</td>
<td>806 to 810</td>
<td>1/10/20</td>
</tr>
<tr>
<td>AB (Rx and Tx)</td>
<td>770 to 810</td>
<td>1/10/20</td>
</tr>
<tr>
<td>Q51</td>
<td>794 to 806</td>
<td>1/10/20</td>
</tr>
<tr>
<td>X51</td>
<td>925 to 937.5</td>
<td>1/10/20</td>
</tr>
</tbody>
</table>

"A" band (770.250-805.750): 1/10/20
"B" band (806.125-809.750): 1/10
Furnished Accessories

**All Systems**

<table>
<thead>
<tr>
<th>Item</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>Receiver</td>
<td>ULXD4</td>
</tr>
<tr>
<td>Power Supply</td>
<td>95-17019</td>
</tr>
<tr>
<td>1/2 Wave Antenna (2)</td>
<td>95T9279</td>
</tr>
<tr>
<td>2' BNC Cable (2)</td>
<td>95K2035</td>
</tr>
<tr>
<td>BNC Bulkhead Adapters (2)</td>
<td>95A8994</td>
</tr>
<tr>
<td>Rackmount Kit (1)</td>
<td>90AZ8100</td>
</tr>
<tr>
<td>5' Ethernet Cable (1)</td>
<td>95A16941</td>
</tr>
<tr>
<td>AA Alkaline batteries (2)</td>
<td>80B8201</td>
</tr>
</tbody>
</table>

**Handheld Systems**

<table>
<thead>
<tr>
<th>Item</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>Handheld Transmitter</td>
<td>ULXD2</td>
</tr>
<tr>
<td>Cartridge</td>
<td>see options below</td>
</tr>
<tr>
<td>Microphone Clip</td>
<td>95T9279</td>
</tr>
<tr>
<td>Zipper Bag</td>
<td>95B2313</td>
</tr>
</tbody>
</table>

**Choice of one (1) of the following:**

<table>
<thead>
<tr>
<th>Model</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>SM58</td>
<td>RPW112</td>
</tr>
<tr>
<td>SM86</td>
<td>RPW114</td>
</tr>
<tr>
<td>SM87A</td>
<td>RPW116</td>
</tr>
<tr>
<td>Beta 58A</td>
<td>RPW118</td>
</tr>
<tr>
<td>Beta 87A</td>
<td>RPW120</td>
</tr>
<tr>
<td>Beta 87C</td>
<td>RPW122</td>
</tr>
<tr>
<td>KSM9</td>
<td>RPW184</td>
</tr>
<tr>
<td>KSM9HS</td>
<td>RPW186</td>
</tr>
</tbody>
</table>

**Bodypack System**

<table>
<thead>
<tr>
<th>Item</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bodypack Transmitter</td>
<td>ULXD1</td>
</tr>
<tr>
<td>Antenna</td>
<td>95G9043</td>
</tr>
<tr>
<td>Zipper Bag</td>
<td>95A2313</td>
</tr>
</tbody>
</table>

Choice of one (1) of the following:

<table>
<thead>
<tr>
<th>Item</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>Instrument cable</td>
<td>WA302</td>
</tr>
<tr>
<td>Instrument Clip-on microphone</td>
<td>Beta 98H/C</td>
</tr>
<tr>
<td>Lavalier microphone</td>
<td>MX150, MX153, WL183, WL184, WL185</td>
</tr>
<tr>
<td>Headset microphone</td>
<td>WH30TQG</td>
</tr>
</tbody>
</table>

**Antennas**

<table>
<thead>
<tr>
<th>Band</th>
<th>1/2-Wave Receiver Antennas</th>
<th>1/4-Wave Transmitter Antennas</th>
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<tbody>
<tr>
<td>G50</td>
<td>95AA9279</td>
<td>95G9043 (Yellow)</td>
</tr>
<tr>
<td>G51</td>
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</tr>
<tr>
<td>H51</td>
<td>95AL9279</td>
<td>95D9043 (Gray)</td>
</tr>
<tr>
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<td>95D9043 (Gray)</td>
</tr>
<tr>
<td>J50</td>
<td>95AK9279</td>
<td>95E9043 (Black)</td>
</tr>
<tr>
<td>K51</td>
<td>95AJ9279</td>
<td>95E9043 (Black)</td>
</tr>
<tr>
<td>L50</td>
<td>95AD9279</td>
<td>95E9043 (Black)</td>
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<td>95AD9279</td>
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</tr>
<tr>
<td>P51</td>
<td>95AF9279</td>
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<td>R51</td>
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<tr>
<td>AB</td>
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</tr>
<tr>
<td>Q51</td>
<td>95M9279</td>
<td>N/A</td>
</tr>
</tbody>
</table>

**Optional Accessories**

- **Shure Rechargeable Battery** | SB900 |
- **8-Bay Battery Charger**    | SBC800 |
- **Dual Docking Battery Charger** | SBC200 |
- **Carrying Case**            | WA610 |
- **Y-Cable for Bodypack Transmitters** | AXT652 |
- **Active Antenna Splitter**  | UA845SWB |
- **Passive Antenna Splitter/Combiner Kit** | UA221 |
- **UHF Line Amplifier**       | UA830USTV |
- **UHF Antenna Power Distribution Amplifier (U.S.A.)** | UA844SWB |
- **UHF Antenna Power Distribution Amplifier (Europe)** | UA844SE |
- **In-line Power Supply**     | UABIAST |
- **Front Mount Antenna Kit (Includes 2 cables and 2 bulkhead** | UA600 |
- **Remote Antenna Bracket with BNC Bulkhead Adapter** | UA505 |

- **UHF Powered Directional Antenna** | UA874WB |
- **Passive Directional Antenna**  | PA805SWB |
- **Coaxial Cable, BNC-BNC, RG58C/U type, 50 Ohm, 2 ft length (0.6 m)** | UA802 |
- **Coaxial Cable, BNC-BNC, RG58C/U type, 50 Ohm, 6 ft length (2 m)** | UA806 |
- **Coaxial Cable, BNC-BNC, RG8X/U type, 50 Ohm, 25 ft length (7.5 m)** | UA825 |
- **Coaxial Cable, BNC-BNC, RG8X/U type, 50 Ohm, 50 ft length (15 m)** | UA850 |
- **Coaxial Cable, BNC-BNC, RG213/U Type, 50 Ohm, 100 ft length (30 m)** | UA8100 |
- **Rackmount Bracket, Short**  | 53A8611 |
- **Rackmount Bracket, Long**   | 53A8612 |
- **Link Bar**                  | 53B8443 |
Certifications

This product meets the Essential Requirements of all relevant European directives and is eligible for CE marking.

The CE Declaration of Conformity can be obtained from: www.shure.com/europe/compliance

Authorized European representative:
Shure Europe GmbH
Headquarters Europe, Middle East & Africa
Department: EMEA Approval
Jakob-Dieffenbacher-Str. 12
75031 Eppingen, Germany
Phone: 49-7262-92 49 0
Fax: 49-7262-92 49 11 4
Email: EMEAsupport@shure.de

Certified under FCC Part 74.
Certified by IC in Canada under RSS-123 and RSS-102.


**FCC:** DD4ULXD1G50, DD4ULXD1H50, DD4ULXD1J50, DD4ULXD1L50; DD4ULXD2G50, DD4ULXD2H50, DD4ULXD2J50, DD4ULXD2L50.

Approved under the Declaration of Conformity (DoC) provision of FCC Part 15.
Certified in Canada by IC to RSS-123.

**IC:** 616A-ULXD4 G50, 616A-ULXD4 J50, 616A-ULXD4 L50

**ULXD4 H50**
Complies with and/or is certified to RSS-123, RSS-GEN.

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Important Product Information

**LICENSING INFORMATION**

Licensing: A ministerial license to operate this equipment may be required in certain areas. Consult your national authority for possible requirements. Changes or modifications not expressly approved by Shure Incorporated could void your authority to operate the equipment. Licensing of Shure wireless microphone equipment is the user’s responsibility, and licensability depends on the user’s classification and application, and on the selected frequency. Shure strongly urges the user to contact the appropriate telecommunications authority concerning proper licensing, and before choosing and ordering frequencies.

**Information to the user**

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and the receiver.
- Connect the equipment to an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

**Note:** EMC conformance testing is based on the use of supplied and recommended cable types. The use of other cable types may degrade EMC performance.

Please follow your regional recycling scheme for batteries, packaging, and electronic waste.
## FREQUENCIES FOR EUROPEAN COUNTRIES

### ULXD-P51 710 - 782 MHz, max. 20 mW

<table>
<thead>
<tr>
<th>Country Code</th>
<th>Frequency Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Code Pays</td>
<td>Gamme de frequences</td>
</tr>
<tr>
<td>Codice di paese</td>
<td>Gamme di frequenza</td>
</tr>
<tr>
<td>Código de país</td>
<td>Gama de frecuencias</td>
</tr>
<tr>
<td>Länder-Kürzel</td>
<td>Frequenzbereich</td>
</tr>
</tbody>
</table>

A, B, BG, CH, CY, CZ, D, EST 710 - 782 MHz *
GR, H, I, IS, L, LT, NL, P, PL, S, SK, SLO 710 - 782 MHz *

RO 718-719; 726-727; 734-743; 750-751; 758-759 MHz*

DK, E, FIN, HR, IRL, LV, M, N, TR *

All other countries *

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### ULXD-G51 470 - 534 MHz, max. 20 mW

<table>
<thead>
<tr>
<th>Country Code</th>
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</tr>
</thead>
<tbody>
<tr>
<td>Code Pays</td>
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</tr>
<tr>
<td>Länder-Kürzel</td>
<td>Frequenzbereich</td>
</tr>
</tbody>
</table>

A, B, BG, CH, CY, CZ, D, EST 470 - 534 MHz *
F, GB, GR, H, I, IS, L, LT 470 - 534 MHz *
NL, P, PL, S, SK, SLO 470 - 534 MHz *
DK, FIN, M, N *
HR, E, IRL, LV, RO, TR *

All other countries *

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### ULXD-H51 534 - 598 MHz, max. 20 mW

<table>
<thead>
<tr>
<th>Country Code</th>
<th>Frequency Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Code Pays</td>
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<tr>
<td>Länder-Kürzel</td>
<td>Frequenzbereich</td>
</tr>
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</table>

A, B, BG, CH, CY, CZ, D, EST 534 - 598 MHz *
F, GB, GR, H, I, IS, L, LT 534 - 598 MHz *
NL, P, PL, S, SK, SLO 534 - 598 MHz *
DK, FIN, M, N *
HR, E, IRL, LV, RO, TR *

All other countries *

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### ULXD-K51 606 - 670 MHz, max. 20 mW

<table>
<thead>
<tr>
<th>Country Code</th>
<th>Frequency Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Code Pays</td>
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<td>Länder-Kürzel</td>
<td>Frequenzbereich</td>
</tr>
</tbody>
</table>

A, B, BG, CH, CY, CZ, D, EST 606 - 670 MHz *
F, GB, GR, H, I, IS, L, LT 606 - 670 MHz *
NL, P, PL, S, SK, SLO 606 - 670 MHz *
RO 646-647,654-655,662-663 MHz*
DK, E, FIN, HR, IRL, LV, M, N, TR *

All other countries *

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### ULXD-R51 800 - 810 MHz, max. 20 mW

<table>
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<tr>
<th>Country Code</th>
<th>Frequency Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Code Pays</td>
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</tr>
<tr>
<td>Länder-Kürzel</td>
<td>Frequenzbereich</td>
</tr>
</tbody>
</table>

N 800 - 810 MHz*
A, B, BG, CH, CY, CZ, D, DK, E, EST *
F, FIN, GB, GR, H, HR, I, IRL, IS, L, LT *
LV, M, N, NL, P, PL, S, SK, SLO, TR *

All other countries *

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* IMPORTANT

NOTE: THIS EQUIPMENT MAY BE CAPABLE OF OPERATING ON SOME FREQUENCIES NOT AUTHORIZED IN YOUR REGION. PLEASE CONTACT YOUR NATIONAL AUTHORITY TO OBTAIN INFORMATION ON AUTHORIZED FREQUENCIES AND RF POWER LEVELS FOR WIRELESS MICROPHONE PRODUCTS IN YOUR REGION.

A ministerial license may be required to operate this equipment in certain areas. Consult your national authority for possible requirements.

* WICHTIG

HINWEIS: DIESES GERÄT KANN MÖGLICHERWEISE AUF EINIGEN FREQUENZEN ARBEITEN, DIE IN IHREM GEBIET NICHT ZUGELASSEN SIND. WENDEN SIE SICH BITTE AN DIE ZUSTÄNDIGE BEHÖRDE, UM INFORMATIONEN ÜBER ZUGELASSENE FREQUENZEN UND ERLAUBTE SENDELEISTUNGEN FÜR DRAHTLOSE MIKROFONPRODUKTE IN IHREM GEBIET ZU ERHALTEN.

Zulassung: In einigen Gebieten ist für den Betrieb dieses Geräts u.U. eine behördliche Zulassung erforderlich. Wenden Sie sich bitte an die zuständige Behörde, um Informationen über etwaige Anforderungen zu erhalten.

*IMPORTANT

REMARQUE: IL EST POSSIBLE QUE CE MATÉRIEL SOIT CAPABLE DE FONCTIONNER SUR CERTAINES FREQUENCES NON AUTORISÉES LOCALEMENT. SE METTRE EN RAPPORT AVEC LES AUTORITÉS COMPÉTENTES POUR OBTENIR LES INFORMATIONS SUR LES FRÉQUENCE ET NIVEAUX DE PUISANCE HF AUTORISÉES POUR LES SYSTÈMES DE MICROPHONES SANS FIL LOCALEMENT.

Autorisation d’utilisation : Une licence officielle d’utilisation de ce matériel peut être requise dans certains pays. Consulter les autorités compétentes pour les exigences possibles.

*IMPORTANTANTE

NOTA: ES POSIBLE QUE ESTE EQUIPO FUNCIONE EN ALGUNAS FRECUENCIAS NO AUTORIZADAS EN SU REGIÓN. POR FAVOR CONTACTE A LA AUTORIDAD NACIONAL PARA OBTENER INFORMACIÓN ACERCA DE LAS FRECUENCIAS AUTORIZADAS Y LOS NIVELES DE POTENCIA DE RADIOFRECUENCIA PARA PRODUCTOS CON MICROFONOS INALÁMBRICOS EN SU ZONA.

Licencia de uso: Se puede requerir una licencia ministerial para utilizar este equipo en algunas áreas. Consulte a la autoridad nacional sobre los posibles requisitos.